

LISTING OF CLAIMS:

Claims 1-15 (Cancelled)

16. (Previously Presented) In a method of producing a ball-and-socket joint (1) between a slipper (3) and a piston (2) of a piston machine, including the steps of:

a) configuring the slipper (3) with a joint ball (4) at an end opposite a bottom surface (21) thereof;

b) configuring the piston (2) at an oversized dimension (x) on a lateral surface (2c) and with a hemispherical joint recess (5) having a free recess edge (7) protruding beyond the maximum diameter (6) of the joint recess (5) at one end of the piston (2);

c) and finishing the lateral surface (2c) of the piston (2); the improvement comprising:

d) inserting the joint ball (4) into the joint recess (5) after finishing the lateral surface (2c) of the piston (2) as set forth in step c):

e) locally heating the free recess edge (7) to a temperature reducing the hardness of the material thereof; and

f) hot-beading the free recess edge (7) into a circumferentially converging configuration for confining said joint ball (4) within said joint recess (5).

17. (Previously Presented) In a method producing a ball-and-socket joint (1) between a slipper (3) and a piston (2) of a piston machine, including the steps of:

a) configuring the piston (2) at an oversized dimension (x) on a lateral surface and with a joint ball (4) at one end thereof;

DO NOT
ENTER
7/6/04
of

b) configuring the slipper (3) with a hemispherical joint recess (5) having a free recess edge (7) protruding beyond the maximum diameter (6) of the joint recess (5);

c) and finishing the lateral surface (2c) of the piston (2); the improvement comprising:

d) inserting the joint ball (4) into the joint recess (5) after finishing the lateral surface (2c) of the piston (2) as set forth in step c);

e) locally heating the free recess edge (7) to a temperature reducing the hardness of the material subsequent to insertion of said joint ball (4) into said recess (5); and

f) hot-beading the free recess edge (7) into a circumferentially converging form in which said recess edge positively grips the joint ball (4) to inhibit egress of said joint ball from said joint recess.

18. (Previously Presented) A method according to Claim 16 or 17, wherein preceding finishing the lateral surface (2c) of the piston (2), the lateral surface (2c) is selectively nitrided, hardened, or gas-nitrided.

19. (Previously Presented) A method according to Claim 16 or 17, wherein the free recess edge (7) is hot-beaded into a conical form converging towards the free edge thereof.

20. (Currently Amended) A ball-and-socket joint (1) forming a connection between a piston (2) constituted of hardened steel which is hardened through nitriding, and a slipper (3) of a piston machine; said joint (1) comprising:

a) a hemispherical joint recess (5) having a free recess edge (7) provided at one end of said piston (2);

- b) a spherical joint ball (4) on said slipper (3) being pivotably mounted in said joint recess (5);
- c) a free recess edge (7) of the joint recess (5) [having been] being in close relationship with the surface of the spherical joint-ball (4) confined therein and hot-beaded into a condition reducing the hardness and spring back of the joint recess (5) in contrast [~~with a hardness and ductility obtained~~] through spring back responsive to a cold-beading thereof for converging said free recess edge in a measurably enhanced manner into a configuration with an outer lateral surface thereof converging conically towards the free recess edge confining said spherical joint ball within said joint recess.[:]
- d) ~~wherein said piston (2) is constituted of a hardened steel; and~~
- e) ~~wherein said steel is hardened through nitriding.~~

Claims 21 and 22 (Cancelled).

23. (Currently Amended) A ball-and-socket joint (1) forming a connection between a piston (2) constituted of hardened steel which is hardened through nitriding, and a slipper (3) of a piston machine, said joint (1) comprising:

- a) a hemispherical joint recess (5) having a free recess edge (7) provided on said slipper (3);
- b) a spherical joint ball (4) formed on an end of said piston (2) being pivotably mounted in said joint recess (5),
- c) said free recess edge (7) of the joint recess (5) [having been] being hot-beaded into a condition reducing the hardness and spring back of said joint recess in contrast with a hardness and [ductility] spring back obtained through a cold-beading thereof for converging in a measurably enhanced manner said free recess edge into a configuration with an outer lateral surface thereof

converging conically towards the free recess edge[,] confining said spherical joint ball within said joint recess[;].

~~d) wherein said piston (2) is constituted of a hardened steel; and~~

~~e) wherein said steel is hardened through nitriding.~~

Claims 24 and 25 (Cancelled).

26. (Previously Presented) A ball-and-socket joint according to Claim 23, wherein said slipper (3) is constituted of a high-strength metal.

27. (Previously Presented) A ball-and-socket joint according to Claim 26, wherein said metal comprises steel.

28. (Previously Presented) A ball-and-socket joint according to Claim 27, wherein said slipper (3) includes a base surface (21) opposite said spherical joint ball (4), a recess (8b) being formed in said base surface, and a plate-shaped insert (8a) possessing high sliding properties being mounted in said recess.

29. (Previously Presented) A ball-and-socket joint according to Claim 28, wherein said insert (8a) is constituted of bronze or brass.